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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,745	09/05/2003	Robert William Courtenay	303.936US5	9069

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EXAMINER

JOLLEY, KIRSTEN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,745

Applicant(s)

COURTENAY, ROBERT WILLIAM

Examiner

Kirsten C. Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006 and 12 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17,31-33 and 35-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17,31-33 and 35-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/14/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 14, 2006 has been entered.

Response to Arguments/Amendments

2. The 35 USC 112, 1st paragraph rejection of claim 37 has been withdrawn in response to Applicant's amendments to the claim.

3. The 35 USC 102(e) and 103(a) rejections over Tomoeda et al. have been withdrawn in response to Applicant's amendments to the claims because Tomoeda et al. does not teach rotating its substrate while spraying.

4. The 35 USC 102(b) and 103(a) rejections over Sakawaki have been withdrawn in response to Applicant's amendments to the claims because Sakawaki does not teach starting spraying at the edge of the wafer substrate.

5. The 35 USC 102(b) and 103(a) rejections over Samuels have been withdrawn upon further consideration because Samuels does not start and stop motion/spraying at the edges of the wafer substrate as illustrated in Figure 4.

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6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 39-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is the Examiner's position that the following limitations in claim 39 contain new matter: "stopping the single spraying movement *at the second point*" [emphasis added]. The claim, as written, broadly reads on stopping spraying at any second point along the diameter (while additionally spraying across the entire diameter). Applicant does not appear to have been in possession of this invention at the time the application was filed. The specification discloses only two scenarios where the nozzle traverses along the diameter of the substrate starting at the outside: where the nozzle starts dispensing at the outside edge of wafer and discontinues dispensing at the center point of wafer, and where the nozzle begins dispensing at the outside edge of wafer and dispenses solution across the diameter and discontinues at the opposite outside

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edge of wafer (both disclosed in paragraph [0024] of the specification). Therefore claim 39 is broader than the original disclosure and contains new matter.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 39-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 39, lines 9-11, the phrase “while spraying, moving the nozzle in a single direction from the first point to a second point, the second point on the diameter, over the center point, and to the edge of the wafer surface” is vague and indefinite because it is not clear what Applicant is claiming. Is the second point over the center point? Or is the second point at the edge of the wafer surface? It is not clear where the second point (where spraying movement is stopped) is located. For the purpose of examination, the claim is interpreted as requiring that the second point is located at the edge of the wafer since such was the elected embodiment.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 17, 31-33, and 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams (US 5,395,803) or Hillman et al. (US 5,094,884), taken in view of Sakawaki (US 4,267,212).

Adams and Hillman et al. both disclose dispensing coating material on a rotating substrate by commencing spraying/nozzle movement at the outside edge of the substrate, moving the nozzle radially inwards to the center of the substrate, moving the nozzle radially back outwards to the outside edge, and then stopping spraying/nozzle movement at the outside edge (col. 3 of Adams; col. 5, lines 43-45 of Hillman et al.). It is the Examiner's position that it would have been obvious to have alternatively continued spraying/nozzle movement from one edge of the substrate, across the center of the substrate, and stopping at the opposite edge of the substrate with the expectation of equivalent results since both movements would result in the nozzle traversing along a radial path twice.

Additionally, it is noted that Adams and Hillman et al. both teach movement of a nozzle in a somewhat arc-like path because the nozzle pivots from a stationary base. Sakawaki is cited for its teaching of a nozzle which moves in a straight line over the diameter of a wafer as illustrated in Figure 4, not in an arc-like path. It would have been obvious for one having ordinary skill in the art to have performed the spraying in the method of Adams and Hillman et al. in a straight line over the diameter, as is known from Sakawaki, instead of in an arc-like path, with the expectation of equivalent and successful results since both arc-like and straight paths would result in complete coverage of the substrate with coating solution.

As to claims 31 and 40, Adams and Hillman et al. do not teach the claimed speed, however it is well known in the spin coating art that rotation speed is dependent upon a number

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of factors, including length of time of rotation, type and viscosity of material being deposited, the desired thickness, etc. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

As to claims 32-33 and 40, Adams and Hillman et al. are silent with respect to the temperature and humidity during rotating. The Examiner notes that a humidity of 50% and temperature of 72 degrees F reads on ambient/room temperature and humidity, and are well known and commonly used during spin coating processes. It would have been obvious for one having ordinary skill in the art to have used the claimed temperature and humidity values as a matter of routine experimentation, since they are similar to room temperature, in the absence of a showing of criticality.

As to claims 35-36, it would have been obvious to have sprayed through apertures in Adams and Hillman et al.'s nozzles in a fine mist, in a dispersed and divergent pattern, as a matter of design choice of the nozzle. Spraying in a fine mist is well known in the art and would have been well within the skill of an ordinary artisan skilled in the art.

As to claim 37, the coating materials of both Adams and Hillman et al. necessarily include organic solvent.


Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Wednesday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Kirsten C Jolley
Primary Examiner
Art Unit 1762

kcj